

PATENT COOPERATION TREATY

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REC'D 21 SEP 2004

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2031039PC/or	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/FI 2003/000470	International filing date (day/month/year) 12-06-2003	Priority date (day/month/year) 14-06-2002
International Patent Classification (IPC) or national classification and IPC G06F 3/023, G06F 3/033, G06K 9/00		
Applicant Nokia Corporation et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 12-01-2004	Date of completion of this report 07-09-2004
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International Application No.

PCT/FI 2003/000470

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the drawings:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International Application No.

PCT/FI 2003/000470

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-36</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>7-12, 17-18, 25-30, 35-36</u>	YES
	Claims	<u>1-6, 13-16, 19-24, 31-34</u>	NO
Industrial applicability (IA)	Claims	<u>1-36</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

The object of the claimed invention is to improve management of the virtual keyboard of the electronic device and enhance the ergonomics of keyboards.

Documents cited in the international search report:

D1: US 5988902, A
D2: US 5963671, A
D3: EP 1168233, A2
D4: US 5977867, A
D5: US 6104384, A
D6: US 5479536, A

D1 is considered to represent the closest prior art.

D1 relates to a computer system including a touchpad with one or more overlays providing the computer system with various input control functions. The overlay preferably includes tactile response elements to provide tactile feedback to the operator as an indication that a portion of the overlay has been pressed. The touchpad includes a capacitive sensor. Electronics coupled to the touchpad determine which portion of the touchpad sensor surface area has been touched or pressed. The amount of tactile feedback to the computer operator can be varied through the design and construction of the overlay and the overlay may be provided with no tactile feedback, if desired. As such, numerous overlays can be placed on the touchpad of the computer system, thereby providing the computer system with multiple different input control functions. The computer operator may manually input the type of overlay being used into the computer. Alternatively, a portion of the touchpad surface area maybe dedicated to

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

encoding overlay identification information using any one of a variety of techniques. Thus, the computer system may automatically detect the type of overlay used (abstract; column 1, line 34- column 3, line 12 and claims 1-6).

D2 reveals a method for entering data into a computer system using a pointing device such as a stylus or mouse. The most likely to be used characters and controls of a soft keyboard are determined from consulting trigram tables, and enhanced and/or positioned to attract the user and to facilitate quick recognition and selection (abstract and claims 1-11, 17, 34).

D3 relates to a method and arrangement for creating a virtual keyboard for a terminal (800) used in a cellular network. The virtual keyboard is generated using an IR transceiver arrangement (12) in which a reflection from an obstacle (15) placed in the field of IR transmitters is registered by discrete IR receivers. The received reflection data are processed in a neural network arrangement (33). The purpose of the data processing is to find out the virtual key position/function that the received reflection data corresponds to (abstract; page 1, line 1- page 2, line 24 and claims 1-24).

D4 relates to a touch pad such as a keypad or a touch screen mounted with at least one vibrator to produce a tactile feedback sensed by the user as the pad is touched with a finger or a pointer. The vibrator is controlled by a processor such that it will vibrate for a predetermined length of time in the range of 50 to 1000 ms and at predetermined amplitude. The vibrator is also selected to vibrate at a frequency between 100 and 5000 hz. The touch screen may be any of the analogues resistive, infrared, acoustic, capacitive or electromagnetic inductive type operated devices.

The invention according to the independent claims 1 and 19 differs from D1, which is the most relevant prior art document, by determining a virtual keyboard and by re-determining the tactile appearance on the basis of collected information and analyses. The function of the virtual keyboard is considered to have similar purpose as the function of the

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
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overlay mentioned in D1 (See also D3 where a virtual keyboard is described). In D2 statistical analyses, prediction procedures and error detection are mentioned. It is considered obvious to a person skilled in the art to implement analysing functions, like in D2, into the system in D1 and thereby reach a more ergonomic and easier-to-use keyboard.

Thus, the invention according to the independent claims 1 and 19 is not considered to involve an inventive step.

The invention according to dependent claims 2-6, 13-16, 20-24 and 31-34 differs from D1 and D2 by steps and details considered obvious to a person skilled in the art.

The invention according to dependent claims 2-6, 13-16, 20-24 and 31-34 is not considered to involve an inventive step.